United States Department of Agriculture

Marketing and Regulatory Programs

Animal and Plant Health Inspection Service

Cooperative Carambola Fruit Fly Eradication Program

Environmental Assessment, December 2000

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I. Purpose and Need

The Carambola fruit fly, *Bactrocera carambolae*, is a destructive fruit fly species, originally found in Asia (Indonesia, Malaysia, and Thailand). It attacks and damages more than 150 crop species, including many cultivated fruits and some vegetables commonly grown throughout the world for export (green peppers, citrus, banana, papaya, mango, guava, and tomato). The pest was introduced into Suriname in South America as early as 1975, but no action was taken at that time because of an erroneous taxonomic identification. The Carambola fruit fly has now expanded its range in South America, and can be found also in Brazil, French Guyana, and Guyana.

The Carambola fruit fly's presence in Brazil, French Guiana, Guyana, and Suriname represents a threat to the production and marketing of fruit and vegetables throughout tropical and subtropical South and Central America and the Caribbean. Discovery of this pest resulted in the imposition of quarantine restrictions by importing countries in 1986, reducing exports of fruits and vegetables from Suriname and preventing the development and improvement of agricultural resources in Suriname and French Guiana. Guyana currently exports approximately 1 million U.S. dollars of fruit each week to neighboring Caribbean countries. These exports could become prohibited if the Carambola fruit fly becomes established in the fruit-growing regions of the country.

Because of the Carambola fruit fly's threat to the agricultural systems of South American, Central American, Caribbean, and North American countries, the Animal and Plant Health Inspection Service (APHIS) is proposing to join an ongoing multilateral cooperative Carambola fruit fly eradication program being conducted by the Inter-American Institute for Cooperation on Agriculture (IICA), the International Fund for the Agricultural Development (IFAD), the Food and Agriculture Organization of the United Nations (FAO), and the Governments of Brazil, French Guyana, Guyana, and Suriname.

APHIS' authority to cooperate in international pest control programs is based upon provisions of the Organic Act of 1944 (7 U.S.C. 147a(b) section 102(b)). This Act authorizes the Secretary of Agriculture to cooperate with the governments of all countries of the Western Hemisphere, or the local authorities thereof, and with international organizations or associations, in carrying out necessary surveys and control operations in those countries in connection with the detection, eradication, suppression, control, and prevention or retardation of the spread of plant pests.

This environmental analysis has been prepared in compliance with Executive Order 12114, "Environmental Effects Abroad of Major Federal Actions," which represents the United States government's exclusive and complete determination of the procedural and other actions to be taken by Federal agencies to further the purpose of the National Environmental Policy Act, with respect to the environment outside the United States, its territories and possessions.

II. Alternatives

There were two alternatives considered for this analysis: "no action" and "eradication" (the proposed action).

No action would be characterized by no APHIS support (no monetary or managerial support) for the Carambola fruit fly eradication program. Adoption of the no action alternative would mean an increased risk of damage to agricultural resources and loss of trade as a consequence of the Carambola fruit fly infestations in South America.

The eradication alternative is an integrated pest management (IPM) program, characterized in this case by a combination of chemical and nonchemical strategies, including environmental management (consisting of environmental modification, environmental manipulation, and pest awareness actions). Importantly, because this is an existing program that APHIS proposes to join, the program's characteristics are predetermined. Greater detail about the existing program and its technologies may be found in two IFAD documents, "Initial Environmental Evaluation of the Carambola Fruit Fly Programme, March 1998" and "Toxicological and Ecotoxicological Effects of Malathion, Naled and Methyl Eugenol Applications in the Framework of Carambola Fruit Fly Control in Suriname and French Guyana."

III. Environmental Consequences

The potential environmental consequences of each of the alternatives (no action and eradication) were considered. The proposed eradication program's IPM approach uses the following principal control methods: soil treatment and fruit fly male annihilation spot treatment. Each method has been analyzed and discussed in detail within the Fruit Fly Cooperative Control Program Environmental Impact Statement (EIS) (USDA, APHIS, 1999) and the human health risk assessment (USDA, APHIS, 1998a). Refer to those documents for more detailed information.

For this specific program, the following issues were identified and analyzed: (1) potential effects on human health from chemical pesticide applications, (2) potential effects on wildlife (including endangered and threatened species) from program activities and treatments, and (3) potential effects on environmental quality. The site-specific characteristics of the program area were considered with respect to their potential to alter or influence the anticipated effects on human health, wildlife, or environmental quality. No significant cumulative impacts are expected as a consequence of the proposed program or its component treatment methods.

The proposed program's area has urban and suburban characteristics. The detections of Carambola fruit fly are near residential areas. There are a number of sensitive sites within the proposed eradication zone. There are many bodies of water near fruiting host trees within the program area. The eradication applications using fruit fly male annihilation spot treatments (extremely limited and localized use of chemicals) are unlikely to pose any risks in the present treatment area. However, should an expanded program require broadcast bait spray applications, site-specific buffers may be needed to avoid drift and minimize contamination of nearby water bodies. Standard program operational procedures and mitigative measures will be employed to avoid adverse impacts to these areas.

A. Human Health

The principal concerns for human health are related to the program use of chemical pesticides: diazinon (a soil treatment) and malathion or naled lure (spot treatments). Three major factors influence the human health risk associated with pesticide use: fate of the pesticides in the environment, their toxicity to humans, and their exposure to humans. Each of the program pesticides is known to be toxic to humans. Exposure to program pesticides can vary, depending upon the pesticide and the use pattern. Placement of the spot treatments is made to locations outside the reach of the general public, so exposure of the public is generally avoided. Soil treatment is limited to areas within the dripline of host plants where fruit fly larvae are detected in the fruit. The applicators remain present at the treatment site until all puddling from the application has dispersed into the soil or evaporated, so exposures to the general public are prevented. Potential exposure from these applications is low for the general public and program workers. The analyses and data of the programmatic EIS and human health risk assessment indicate that exposures to pesticides from normal program operations are not likely to result in substantial adverse human health effects. Analysis of the exposure scenarios indicates large margins of safety for program applications, even for

unanticipated accidents. Refer to the programmatic EIS, the human health risk assessment, and their supporting documents for more detailed information relative to human health risk.

The alternatives were compared with respect to their potential to affect human health. In general, a well-coordinated eradication program using IPM technologies would result in the least use of chemical pesticides overall and the least potential to adversely affect human health. The no action alternative would not be expected to eliminate Carambola fruit fly and could allow continuing spread of the infestation to other parts of South America. The no action alternative would be expected to result in broader and more widespread use of pesticides by homeowners and commercial growers, with correspondingly greater potential for adverse impact.

Consistent with Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," APHIS considered the potential for disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. In general, the population of the program area is diverse. There is some potential for native people in the surrounding tropical forests to enter areas treated as part of the eradication effort. There is no evidence that any one population is likely to have disproportionate effects from these program activities. APHIS also recognizes that a proportion of the population may have unusual sensitivity to certain chemicals or environmental pollutants and that program treatments pose higher dangers for these individuals. Special notification procedures and precautions, as stated in the programmatic EIS' general mitigative measures, are required and serve to minimize the risk for this group.

B. Nontarget Species

The principal concerns for nontarget species (including endangered and threatened species) are also related to the use of program pesticides. Paralleling human health risk, the risk to nontarget species is related to the fate of the pesticides in the environment, their toxicity to the nontarget species, and their exposure to nontarget species. All of the pesticides are highly toxic to invertebrates, although the likelihood of exposure (and thus impact) varies a great deal from pesticide to pesticide, and with the use pattern. In general, a well-coordinated eradication program using IPM technologies would result in the least use of chemical pesticides overall with minimal adverse impact to nontarget species. The fruit fly male annihilation treatments are applied as spots at elevated locations readily accessible to the Carambola fruit flies, but

not accessible to most wildlife. The bait used to attract the Carambola fruit flies is not attractive to most invertebrates and only those invertebrate species attracted to the bait would be affected. The soil treatments with diazinon would affect soil-dwelling organisms under the treated host plants, but this treatment would be limited to those plants where viable Carambola fruit fly larvae were detected in the fruit. The treatments would result in local decreases in populations of exposed invertebrates, but this effect would only be temporary. The populations would recover with migration of invertebrates from the untreated adjacent areas. The no action alternative would be expected to result in broader and more widespread use of pesticides by homeowners and commercial growers, with correspondingly greater potential for adverse impact. Refer to the programmatic EIS and its nontarget risk assessment (USDA, APHIS, 1998b) for more information on risks to all classes of nontarget species.

The area was considered with respect to any special characteristics that would tend to influence the effects of program operations. Potentially sensitive areas have been identified, considered, and accommodated through special selection of control methods and use of specific mitigative measures. The area contained no special characteristics that would require a departure from the standard operating procedures and mitigative measures that were described in the programmatic EIS.

APHIS has considered the potential effects on the endangered and threatened species in treatment areas of the four countries. Although some endangered and threatened species do occur in areas where treatments will be made, the characteristics of those species and of the planned treatments (male annihilation) preclude any effects. The U.S. Department of the Interior, Fish and Wildlife Service (FWS), does not consult under the provisions of section 7 of the Endangered Species Act of 1973 for species outside the United States. Previously, APHIS consulted with FWS over protection of endangered and threatened species in connection with its Medfly and Oriental fruit fly programs, which use similar methods; FWS concurred with APHIS' no effect determination for those programs. In conclusion, based upon APHIS' review of (1) the species list, (2) the biology of the species, (3) the program area, and (4) the program treatment technology, no impacts to endangered or threatened species, or their habitats, are foreseen.

C. Environmental Quality

The environmental quality issues include concerns for the preservation of clean air, pure water, and a pollution-free environment. Program pesticides remain

the major concern for the public and the program in relation to preserving environmental quality. Although program pesticide use is limited, especially in comparison to other agricultural pesticide use, the proposed action would result in a controlled release of chemicals into the environment. The fate of those chemicals varies with respect to the environmental component (air, water, or other substrate) and its characteristics (temperature, pH, dilution, etc.). The half-life of malathion in soil or on foliage ranges from 1 to 6 days; in water, from 6 to 18 days. The half-life of naled on foliage ranges from 2.3 to 2.5 days. The half-life of diazinon in soil ranges from 1.5 to 10 weeks; in water at neutral pH, from 8 to 9 days. Refer to the programmatic EIS and risk assessments for a more detailed consideration of the pesticides' environmental fates.

The alternatives were compared with respect to their potential to affect environmental quality. Risk to environmental quality is considered minimal. Again, a well-coordinated eradication program using IPM technologies would result in the least use of chemical pesticides overall with minimal adverse impact on environmental quality. The no action alternative would be expected to result in broader and more widespread use of pesticides by homeowners and commercial growers, with correspondingly greater potential for adverse impact.

The proposed program area was examined to identify characteristics that would tend to influence the effects of program operations. Allowances were made for the special site-specific characteristics that would require a departure from the standard operating procedures. The approaches used to mitigate for adverse impacts to bodies of water are described in the EIS.

IV. Listing of Agencies and Persons Consulted

U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Plant Protection and Quarantine
Program Support
4700 River Road, Unit 134
Riverdale, Maryland 20737-1236

U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Policy and Program Development
Environmental Analysis and Documentation
4700 River Road, Unit 149
Riverdale, Maryland 20737-1238

V. References Cited

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 1999. Fruit fly cooperative control program draft environmental impact statement - 1999. USDA, APHIS, Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 1998a. Human health risk assessment for fruit fly cooperative control programs. USDA, APHIS, Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 1998b. Nontarget species risk assessment for fruit fly cooperative control programs. USDA, APHIS, Riverdale, MD.

USDA, APHIS - see U.S. Department of Agriculture, Animal and Plant Health Inspection Service.

Finding of No Significant Impact
for
Carambola Fruit Fly Cooperative Eradication Program,
South America,
Environmental Analysis, December 2000

The U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS) has prepared an environmental analysis (EA) that analyzes alternatives for eradication of the Carambola fruit fly, an exotic agricultural pest that has been found in northern parts of South America. The EA, incorporated by reference in this document, is available from:

U.S. Department of Agriculture
Animal and Plant Health Inspection Service
International Services
4700 River Road, Unit 65
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The EA for this program analyzed alternatives of (1) no action and (2) eradication. Each of those alternatives was determined to have potential environmental consequences. APHIS has chosen to cooperate in the eradication program which employs an integrated pest management (IPM) approach because of the alternative's capacity to reduce the magnitude of potential environmental consequences.

Based upon its review of endangered and threatened species, and their critical habitats, in the program area of operations, APHIS has determined that this program will have no adverse impacts to those species or their critical habitats.

I find that implementation of the proposed program will not significantly impact the quality of the human environment. I have considered and based my finding of no significant impact on the quantitative and qualitative risk assessments of the proposed pesticides and on my review of the program's operational characteristics. In addition, I find that there will be no disproportionate adverse effects to minority or low income populations from program actions, and that the environmental process undertaken for this program is entirely consistent with the principles of "Environmental Justice," as expressed in Executive Order No. 12898. Lastly, because I have not found evidence of significant environmental impact associated with this proposed program, I further find that an environmental impact statement does not need to be prepared.

/S/ December 19, 2000

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Date